

SpanSet secutex®

Lifting
Buffer Pad
Materials

Wind

40
Years

SpanSet
secutex

One
layer
better

SpanSet International

„SpanSet makes the world more colourful“

„The world becomes more colourful with SpanSet“

Many, today generally used developments come from SpanSet. For example, we developed the colour coding of lifting straps and round slings in order to distinguish the originally single-coloured or raw-white straps better. Other important developments were made in the field of round slings and lashing belts; SpanSet is still the market leader in the field of high-quality textile slings and round slings and lashing systems.

„Strong as steel, but light and handy“

Spanset is the expert in the areas of lifting, load securing and high safety; many patented innovations such as the production of round slings or the tension belts with tension ratchet come from us. Other product highlights were the cut-resistant secutex coating and the Magnum round slings.

The beginning was the joint development of the car seat belt together with Volvo in Sweden in 1959. The demand for textile tapes made of synthetic man-made fibres was growing, so that SpanSet was founded in the 1960s.

SpanSet is an owner-managed and internationally operating group of companies with headquarters in Switzerland. More than 800 employees work for us, we have our own branches in more than 20 countries and agencies in almost all industrial countries of the world.

Global and local; Even if not all products are produced at all locations, we can competently advise and comprehensively supply our internationally operating customers on site.

SpanSet secutex

SpanSet secutex Sicherheitstechnik GmbH was founded in 1982 by Heinz Franke and SpanSet GmbH.

At the beginning, the main focus was on the development of protective coatings for textile hoists and lashing equipment. This was also the birth of secutex, secutex is a pseudonym for "Safe Textile".

Over the years, secutex has developed into one of the largest processors of compact polyurethane and is a leading manufacturer of polyurethane-coated lifting belts and protective hoses today; over the years, pure polyurethane products such as technical moulded parts for mechanical engineering, rollers and roller coating, tine protection and surface protection have been added.

With our own mould construction we are able to design and build individual solutions for our customers. In addition to the existing casting systems, various spraying systems were also developed.

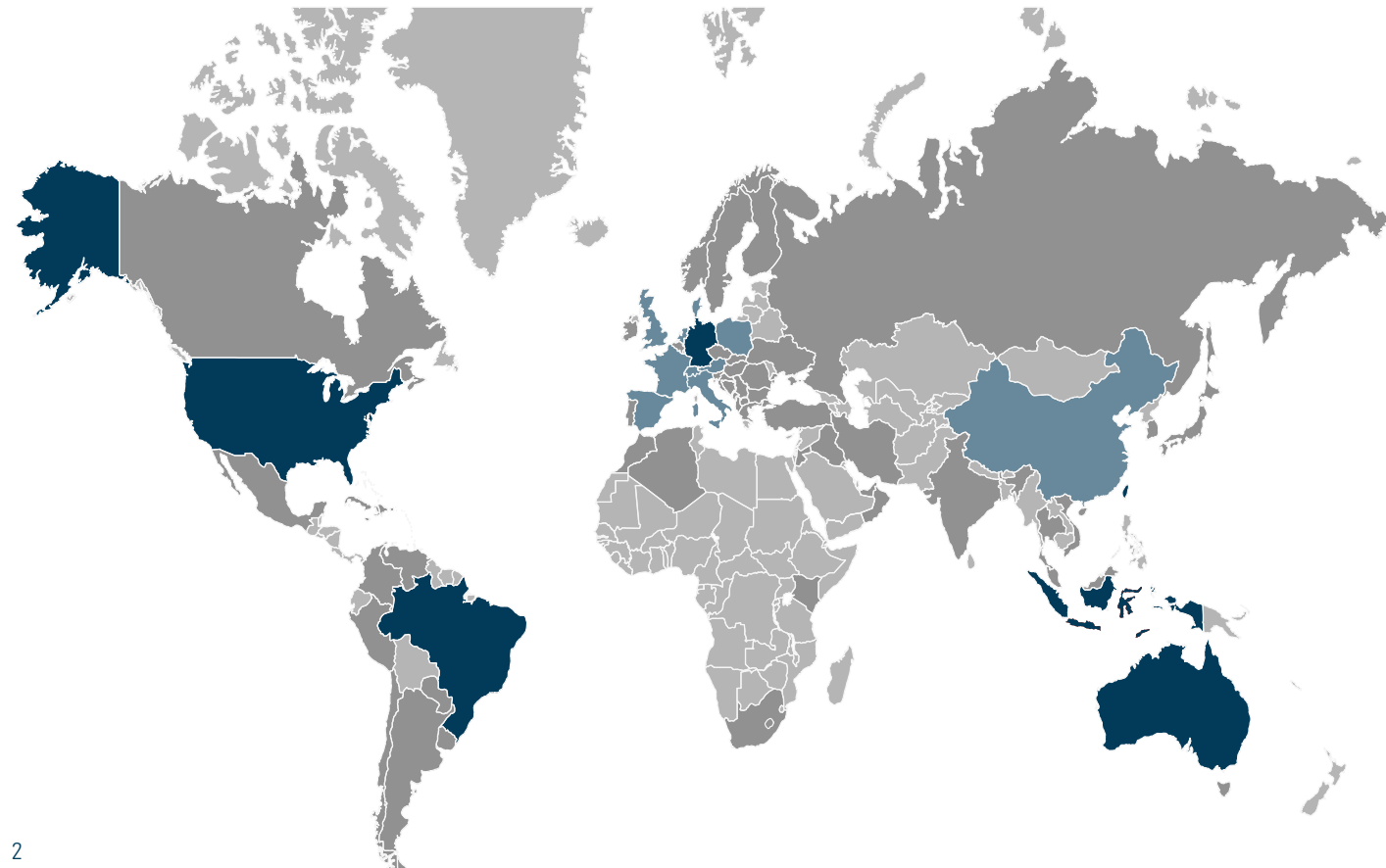
secutex is a highly wear-resistant polyurethane developed for lifting sharp-edged components and for surface protection of sensitive materials - such as coils and copper tubes.

New ideas are consistently implemented in new products. Today, almost all coil storages in Europe are equipped with secutex coil mats and secutex Coilprotect, the secutex protection is almost an industry standard for lifting and storing sharp-edged sheets.

All products are manufactured in Germany and distributed directly and worldwide via SpanSet branches and a large dealer network.

Today, secutex with its almost 70 employees looks back on a versatile range of applications.

SpanSet worldwide



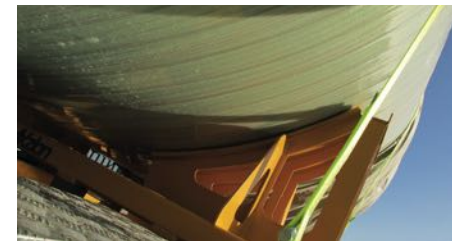
Transport system

secutex protection with high friction for tower elements and rotor blades



Transport system

Exchangeable load support elements with high friction for tower elements and rotor blades.



Full Tower Gripper

Exchangeable secutex elements to protect the tower segments and the flange



SBI Beam

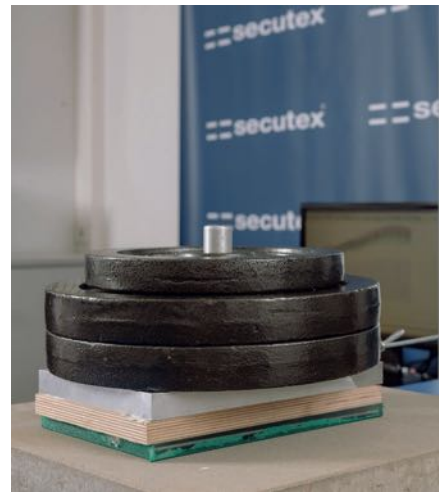
Covering of the blade supports with secutex protection elements adapted to the rotor blade.



Upending Tool

Coating of the clamping grippers and contact points with secutex protection





Universal testing machine

The universal testing machine is a professional testing machine for performing tensile, compression and bending tests. With these tests, the universal testing machine can determine important material characteristics such as elongation at break, yield strength or tensile strength of the specimen.

Temperature Tester

Several material samples are inspected and heated in stages and then the condition is visually evaluated. In addition, the previously heated material samples can be tested in a tensile test, the results allow the material to be evaluated at the different temperatures.

Abrasion Tester

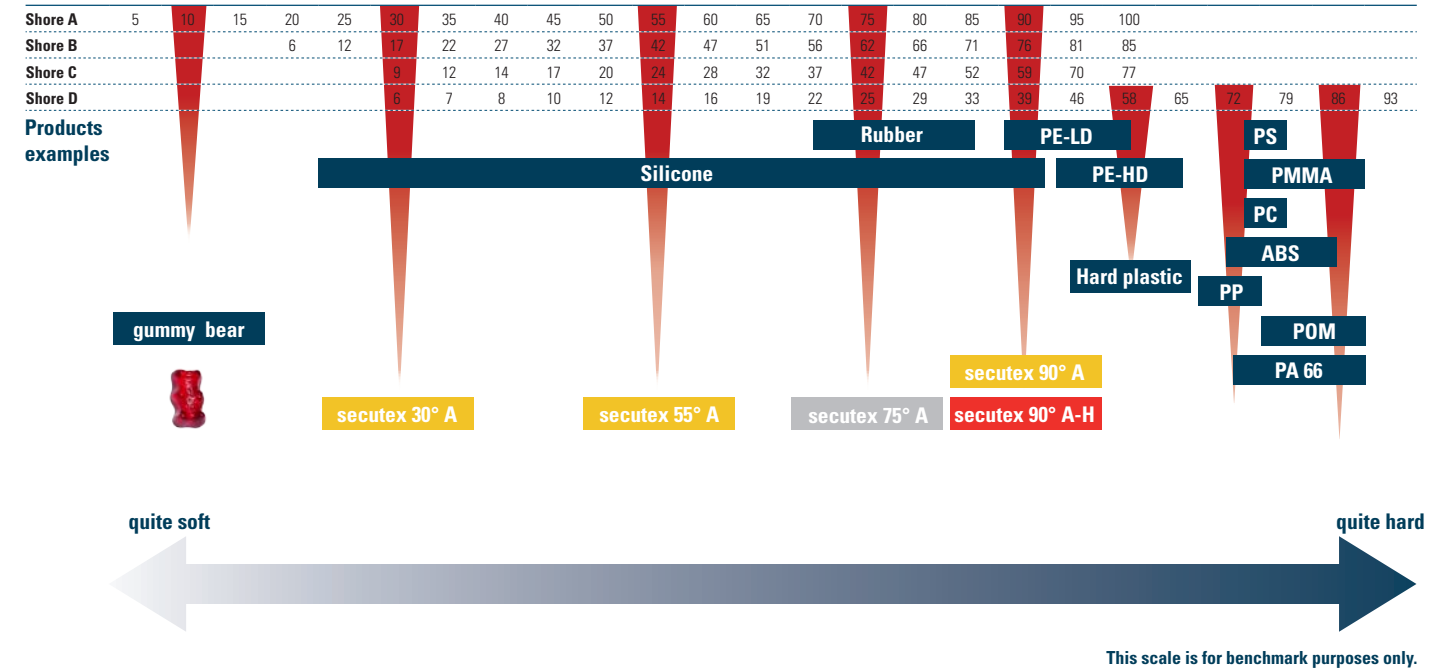
Purely mechanical abrasion is achieved by parallel sliding of two surfaces against each other; this is simulated in the standardized abrasion test. The polyurethane sample is subjected to real abrasion stress, and the time taken to destroy it allows conclusions about its abrasion resistance.

Friction Coefficient Tester

The coefficient of friction is the measure of how high the friction force between two materials is and is stated with the formula symbol "μ". The friction force depends on many different factors. These would be for example material, temperature, humidity, surface, etc.

Weather Tester

The QUV weather tester reproduces the damage caused by sunlight, rain and dew. In a few days or weeks, the QUV UV Tester can reproduce damage caused during months or years of outdoor exposure. The QUV tests materials by exposing them to alternating cycles of UV light and moisture at controlled high temperatures. It simulates the effect of sunlight with special UV fluorescent lamps, the effect of dew and rain is simulated with condensing moisture and/or spray water.



Our standard elastomers

Product			secutex 55	secutex 75	secutex 90	secutex 90 heat
Color			yellow	transparent	yellow	red
Shore hardness at 23 °C	DIN ISO 48-4	Shore	55 A	75 A	90 A	90 A
Tensile modulus of elasticity	DIN EN ISO 527-2	N/mm ²	2,7	15,3	19,7	21,9
100 % yield strength	DIN EN ISO 527-2	N/mm ²	1,2	6,0	6,6	7,0
300 % yield strength	DIN EN ISO 527-2	N/mm ²	1,5	8,0	9,7	17,4
Tensile strength	DIN EN ISO 527-2	N/mm ²	2,8*	12,7*	11,6	24,1
Tensile elongation	DIN EN ISO 527-2	%	660*	660*	378	337
DVR (15%, 70°C, 24 h)	DIN ISO 815	%	n.b.	n.b.	37	35
DVR (25%, 70°C, 24 h)	DIN ISO 815	%	24	51	n.b.	n.b.
Density	DIN EN ISO 1183-1	g/cm ³	1,10	1,22	1,11	1,21
Compressive modulus 10%	DIN ISO 7743	N/mm ²	2,9	12,0	15,0	20,3
Compressive modulus 20%	DIN ISO 7743	N/mm ²	3,3	14,0	20,2	23,8
Rebound resilience	DIN ISO 53512	%	68	42	26	21
Further tensile strength	DIN ISO 34-1, B (b)	kN/m	7,0	25,0	23,0	30,0
Abrasion	DIN ISO 4649	mm ³	130	125	163	60
Service temperature	-	°C	-20 C bis 80 C	-40 C bis 100 C	-20 C bis 80 C	-20 C bis 140 C

* No fraction | n.b. not determined



Hydrolyse
Aging Stability
Chemical resistance

Hydrolysis, Aging Stability

Polyurethane is exposed to a natural aging process called hydrolysis.

Hydrolysis in general is the decomposition of a chemical compound by reaction with water, by hydrolysis the molecules are broken down into their monomers. Hydrolysis is the chemical decomposition of the polyurethane polymer and the resulting material damage. In the final stage of hydrolysis, the polyurethane products lose their physical properties; the material partially cracks, appears oily and crumbles.

The coated lifting slings and other polyurethane products are often stored in closed storage rooms before use. These are usually places where there is greater humidity combined with higher temperatures, and there is no continuous exchange of air. And it is this "standing" humidity that increases the hydrolysis process and makes these products age more rapidly, even if they are not used. This decomposition process is of course significantly faster in tropical and subtropical regions of the world, where it is usually warm and the regular humidity is high.

It is not possible to make any overall statements on the resistance to hydrolysis and aging. Weathering tests under real conditions would take far too long and would not be generally valid. The elastomers being tested therefore in a "Weather" tester to a very high light load, combined with high humidity and higher temperature. The test samples will then be tested in a tensile test after a defined period of time. The results allow a general prognosis of the hydrolysis and ageing resistance.

Chemical resistance

General information

The suitability of the secutex PU material for a specific application often depends on its resistance to chemicals. Polyurethanes can behave very differently when exposed to chemical substances, since their compositions sometimes differ greatly and the various components react differently to the exposure to other substances. Therefore, a clear separation of the effects described cannot be made in every case.

For special applications a special resistance test regarding the swelling and mechanical properties is recommended!

Acids and alkalis

secutex polyurethanes are attacked by concentrated acids and Alkaline liquids already at room temperature. Contact with these reagents should be avoided. secutex polyurethane is resistant to diluted acids and alkaline solutions for a short time at room temperature.

Aromatic hydrocarbons

In contact with aromatic hydrocarbons, such as benzene and toluene, the secutex polyurethane component swells very strongly at room temperature and absorbs up to approx. 50 % of the weight of these aromatic compounds while the mechanical values drop.

Lubricating oils and greases

The test oils IRM 901, IRM 902 and IRM 903 do not cause a decrease in strength at room temperature. Even after three weeks storage at 100 °C there is no decrease in tensile strength. The resistance of secutex polyurethane to many lubricants depends on their additives, which may cause irreversible damage. Special tests are recommended here.

Temperature

For hot processing

Non-ferrous metals, such as gold, copper or brass, get hot during processing and have a sensitive surface. Rollers and cylinders coated with secutex Heat protect bar stock during production; abrasion and run marks are reliably avoided.

Operating temperature up to 140°C

Apart from the positive mechanical and chemical properties, secutex Heat is an elastomer material for operating temperatures up to a maximum of 140°C.

Operating temperature up to 180°C

As an option, „Heat“ can be finished with an aramide fibre surface. The operating temperature thereby even increases to a maximum of 180°C.

Abrasion

secutex PU materials have excellent abrasion resistance and are therefore well qualified for the use in rough areas (steel industry, concrete etc.). The abrasion is caused by mechanical stress, for example friction, and usually produces very small particles (dust).

A purely mechanical abrasion is caused by parallel sliding of two surfaces against each other, this is simulated in the standardized abrasion test. In this test, the polyurethane sample is subjected to real abrasion stress, and the time taken until destruction allows conclusions to be drawn about its abrasion resistance.

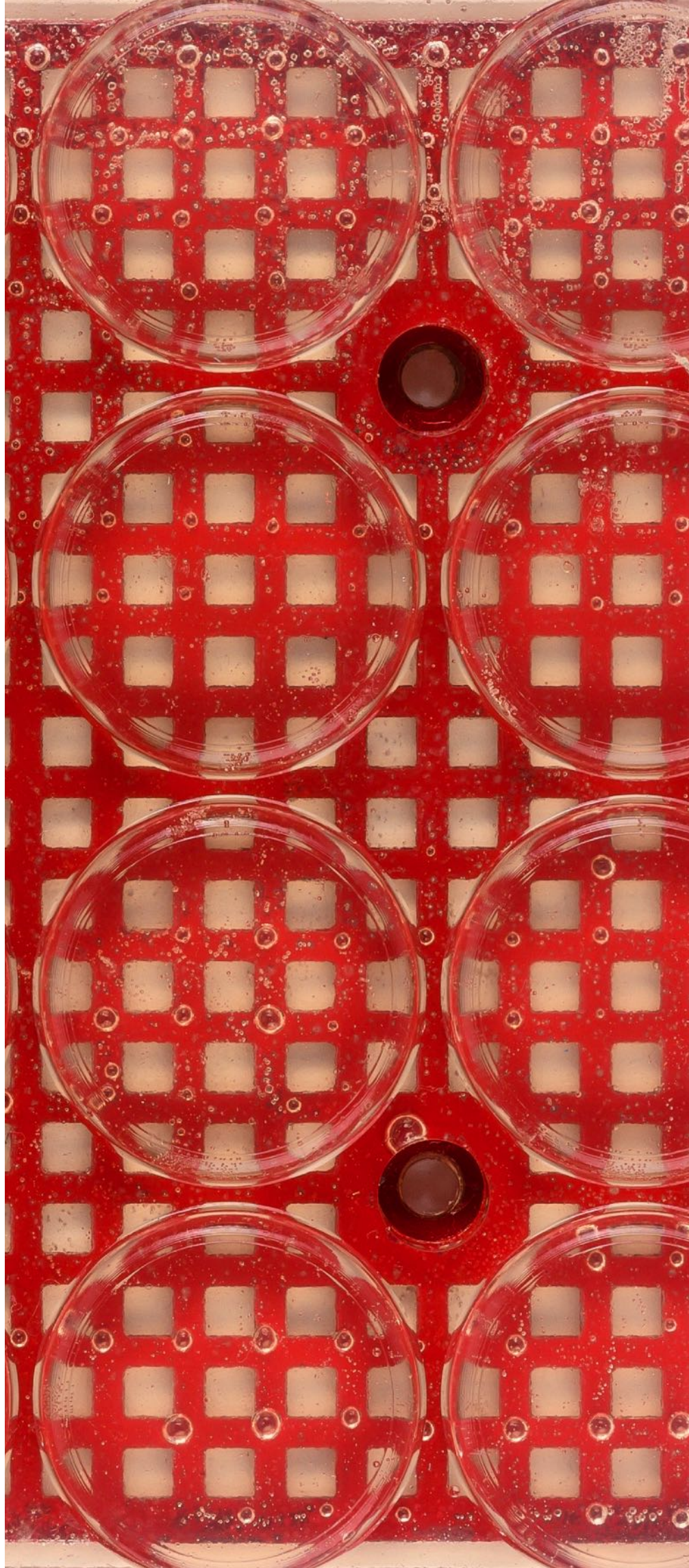
Temperature
Abrasion



SECUTEX WIND

secutex SPL-Modul

The Square System!



SECUTEX WIND

secutex SPL-Modul

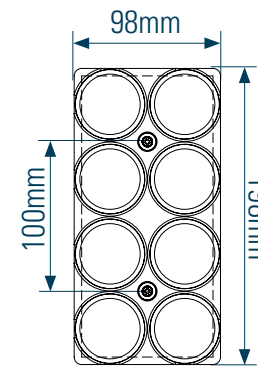


secutex SPL-Modul

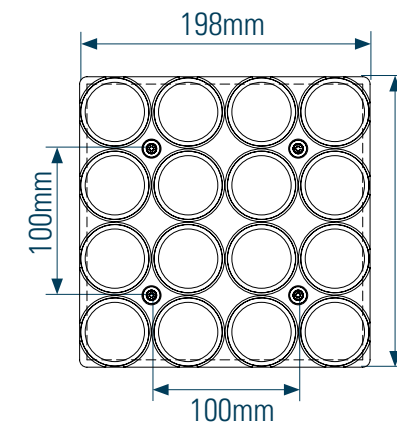
SPL modules are ready-to-mount impact protection elements which are used in gripping systems, transport devices or machines. The system: The dimensions of the holes and the hole distances are the same for the different module sizes, the lengths are always twice as large as for the next smaller module. SPL module is produced in thicknesses of 20, 30 and 40 mm as standard, special sizes are possible. The big plus is that SPL-Modul has a cast-in perforated plate reinforcement.

The elements can be easily adapted to larger contours. The perforated plate reinforcement prevents both longitudinal and transverse elongation, and the fastening holes are extra reinforced. SPL module is regularly notched, water can drain easily.

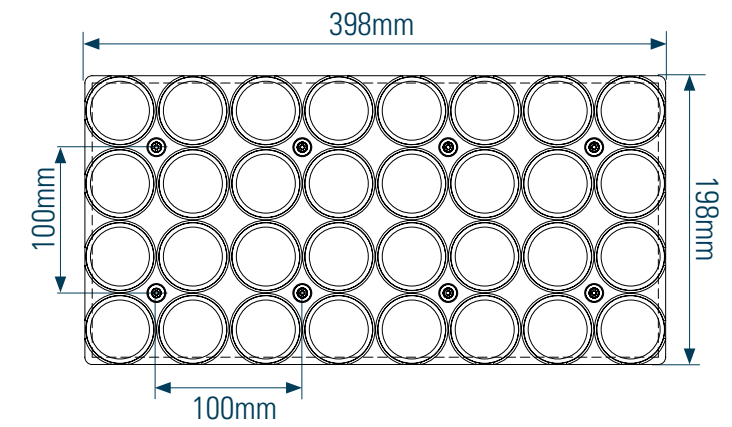
secutex Modul 1/2



secutex Modul 1



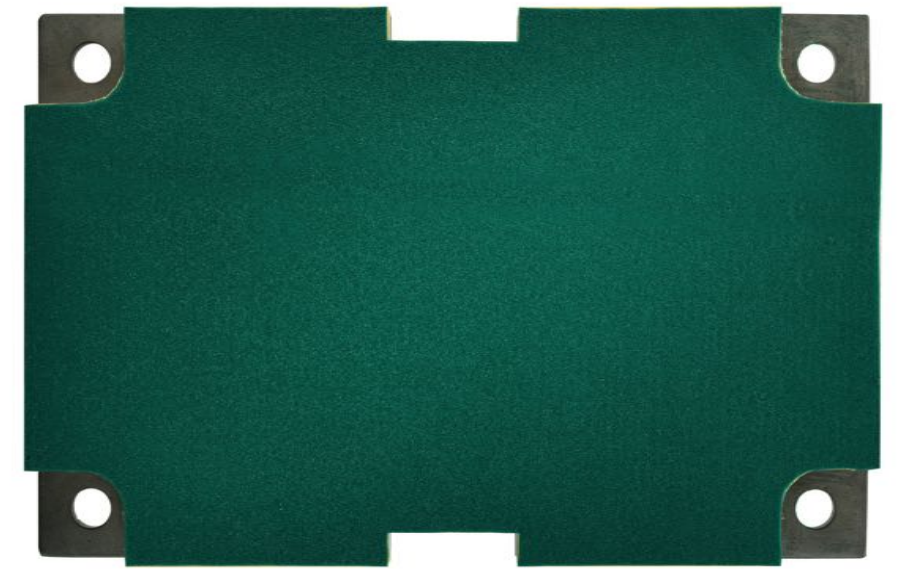
secutex Modul 2



SECUTEX WIND

secutex secuPad HD

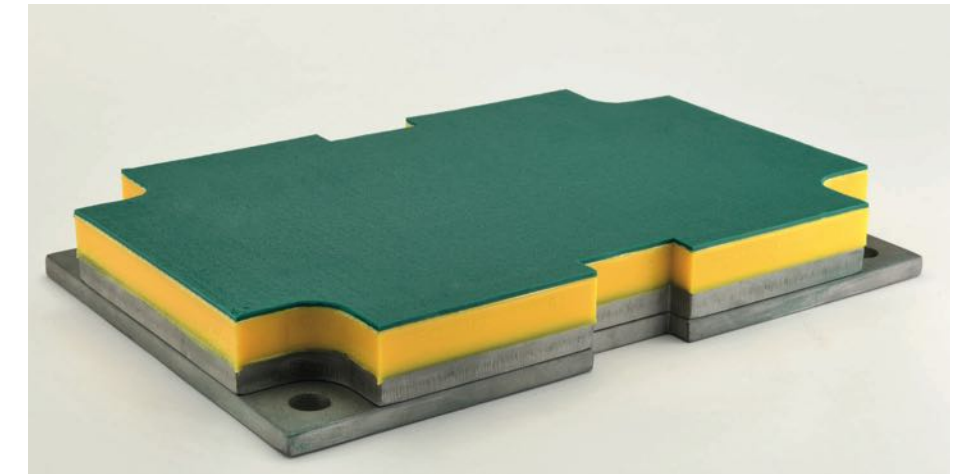
Friction guaranteed!



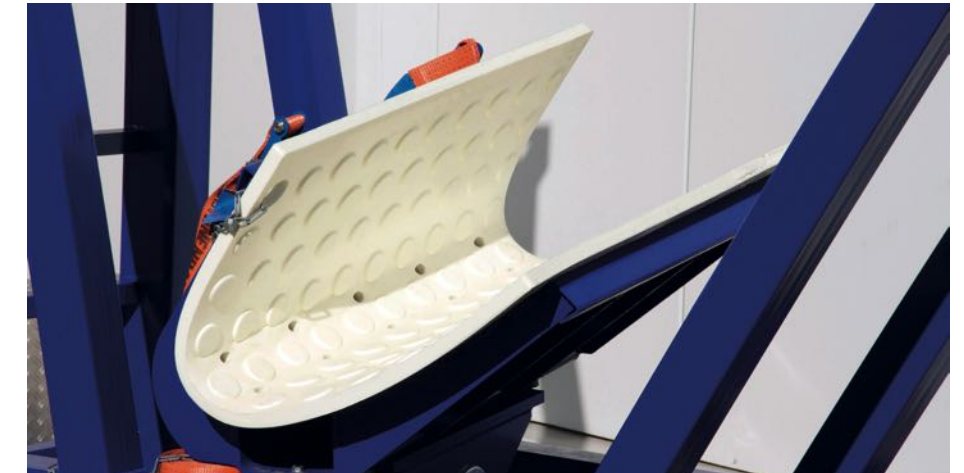
secuPad for the transport and storage of monopiles

The large and extremely heavy monopiles also require new storage profiles. Especially the extreme stress during sea transports with a high number of load changes put extreme stress on the material. The polyurethane used up to now is not sufficiently sturdy, load capacity and also friction are often not proven. Also, users often report that the standard materials used become brittle and oily to feel after a short period of time.

- Developed for extreme heavy duty applications
- Load capacity 50 N/mm²
- With fabric reinforcement
- Solid steel plate with all-round steel frame
- With secuGrip topcoating, coefficient of friction >0.6 μ
- With holes for screws M16
- Seawater resistant



Made for Rotor Blades!



secuFoam storage mats for rotor blades

The much larger and significantly heavier rotor blades also require new storage profiles. Especially the extreme stresses of sea transport with a high number of load cycles are very demanding on the material.

The sponge rubber mats used up to now are not stable enough; the cell structure collapses under the high weights. Also, users always complain about the black wear marks caused by the rubber.

- Foam sheets with oval pattern
- Size max. 2x1m (LxW)
- The color is white, so no black rubber marks.
- Thicknesses up to 80mm can be produced.
- Permanent load stable, so also suitable for rotor blades > 20t dead weight
- Closed cells structure, no water absorption
- Guaranteed friction > 0.6 μ (individual verification required)
- Optionally with large oval knobs, so that rain or sea water can run off and the blades stand dry
- No rubber, therefore resistant to oil and lubricants

Other sizes and forms can be realized without any problems. Profiles adapted to the rotor blade can also be produced easily and at low cost.

Dimensions

Standard width	1000 mm
Standard length	2000 mm
Thickness	10 mm 20 mm 30 mm 40 mm 50 mm

SECUTEX WIND

Trailing edge protection

Clamped with care!



Trailing edge protection

The trailing edges are the most fragile element of the rotor blade and must be protected in a safe way. Secutex has developed 2 types of trailing edge protectors which can be used in combination with standard lashings. The new secutex trailing edge protectors are very handy and compact and will be adapted to the specific shape of the rotor blade.

Trailing edge protection type I

- For lashing of rotor blades, in combination with standard lashing equipment
- Inlay adapted to the trailing edge of the rotor blade
- Distributes the lashing force equally
- Flexible
- Lightweight and easy to handle

Trailing edge protection type II

- For lashing of rotor blades, in combination with standard lashing equipment
- Inlay adapted to the trailing edge of the rotor blade
- Distributes the lashing force equally
- Stiff against bending, so no stress on the glued trailing edge
- High strength steel insert
- Easily to handle

**SPL-F with impact protection
t=2mm**



Our most popular product – secutex impact protection including a perforated plate. Easy and flexible to use and safely secured with the perforated plate serving as reinforcement and providing a universal impact protection in next to no time.

Technical Data

Width	30-1000mm
Length	Standard-Length 3m
Thickness	min. 10 mm
Hardness	50° Shore A 75° Shore A 90° Shore A
Color	Transparent or colored
Perforated metal sheet	2mm, 5mm, 2mm Niro



SP-F



Where screwing or welding is not possible, simply glue secutex to areas where impact protection is required. No problem for the special secutex adhesive. secutex – the gentle answer to strong impact forces.

Technical Data

Width	30-1000mm
Length	Standard-Length 3m
Thickness	5-150mm
Hardness	50°, 75°, 90° Shore A 85° Shore D
Color	Transparent or colored



SPG-F with fabric reinforcement



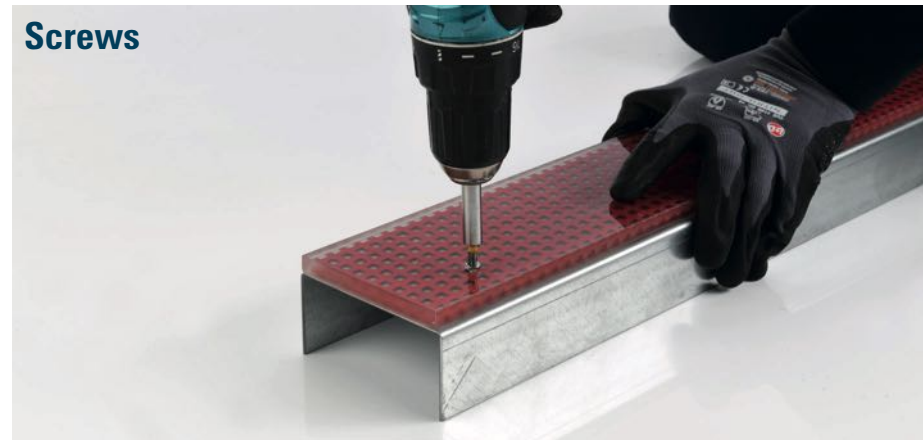
The fabric prevents the secutex elastomer from any elongating under load. And the fabric backing can be bonded excellently because of the larger surface.

Technical Data

Thickness	5-150mm
Width	30-1000 mm
Length	Standard-Length 3 m
Hardness	50° Shore A 75° Shore A 90° Shore A
Color	Transparent or colored



Screws



This is our top seller – secutex buffer pad with a perforated plate. Easy and flexible to use and can be fixed reliably with the perforated plate as reinforcement. In this way, you will have a universal impact protection in a short time. Size and quantity of the drill holes depend on the substructure and must be specified on site.



Welding



Welding is often the simplest and best way of fastening. The range of different perforated plates offers a wide range of applications.

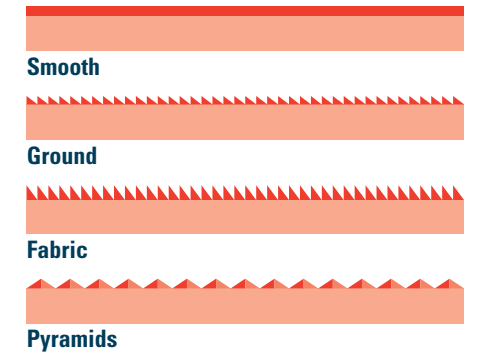
Size and quantity of the welding joints depend on the substructure and must be defined on site. Please note that the perforated metal sheet can under no circumstances take over any static functions. The secutex buffer pad is simply disconnected by grinding away the welding spots.



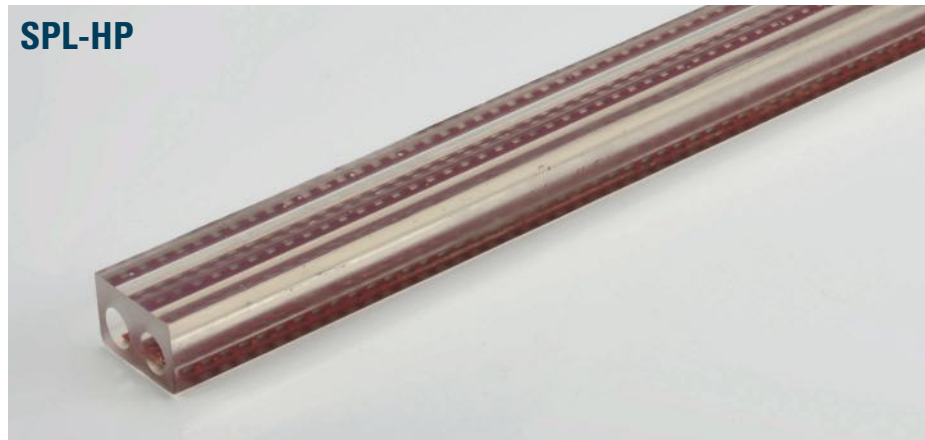
Surface



secutex impact protection can be manufactured with different surface finishes. This is important for special applications under the influence of water, oil or ice.



SPL-HP



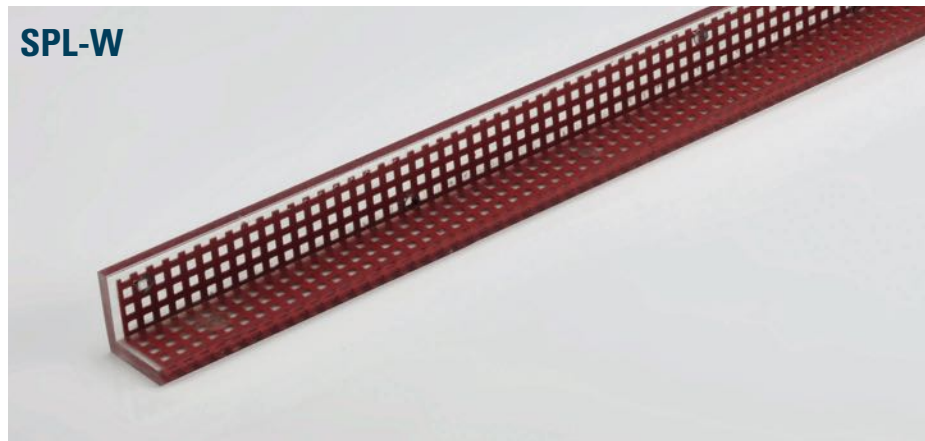
Sometimes, a hollow design offers the best solution, as the bigger the deformable zone, the higher the impact protection. This does not only apply to cars but everywhere where impact protection is required. Hope for the best – expect the worst. Protect your goods against damage! secutex PROFILE is hollow – but for a very good reason.

Technical Data

Thickness	min. 40 mm
Width	from 30 mm
Length	Standard 3 m
Number of holes	1-5
Hole diameter	20mm 30mm 40mm 50mm



SPL-W



secutex impact protection with elbow-design and inboard perforated plate are mounted when protection must also extend around the corner. The impact protection elbows can be manufactured to be isosceles as well as asymmetrical.

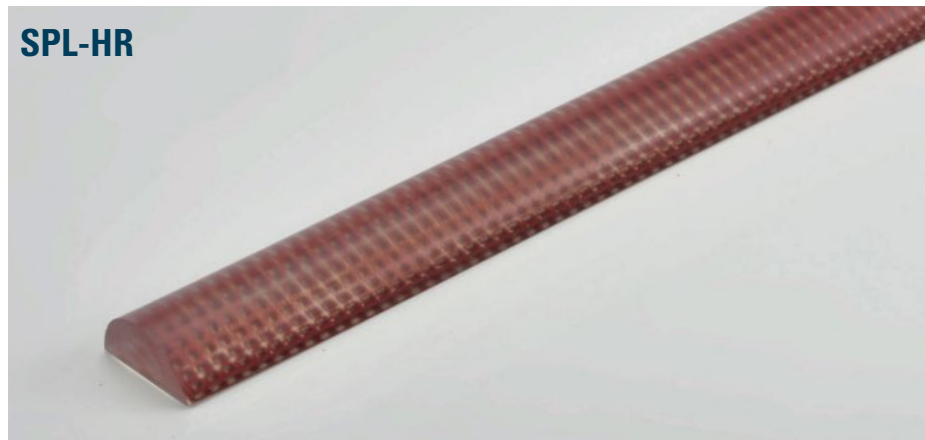
Technical Data

Thickness	10 mm 15 mm 20 mm
Length of legs*	50 mm 75 mm 100 mm
Length	Standard 3 m

*Other leg length on request



SPL-HR



secutex impact protection semicircles are suited for use with round loads that have been processed at the company. The inboard perforated plate prevents longitudinal and lateral straining of the material and allows for easy screw-on applications.

Technical Data

Diameter	30 mm - 120 mm
Length	Standard 3 m



SPG-RF



secutex ramp protection with hollow cavity profile and fabric insert serves as a flexible buffer. The angled hollow cavity absorbs the impact energy and thereby protects against damage. By default, the secutex ramp fender is finished with a yellow and black fabric insert.

Technical Data

Width	80mm 100 mm
Height	100 mm 130 mm



secuRoll



With securoll secutex offers a specially developed coating for cylinders and rolls, which is cast in form or applied directly onto the roller core. During product development the vast experience of secutex with all types of coatings was introduced. secutex supplies a wide selection of securoll for almost any application. Material hardnesses of 55°-90° Shore are supplied. The innovative process ensures high precision in the coating with very low tolerances as well as optimum and long-term bonding between the cylinder/roller core and the securoll material.

Technical Data

Surfaces	Smooth Rough Slotted
Coating hardness	55° Shore A 75° Shore A 90° Shore A
Coating shape	Cylindrical Convex Conical



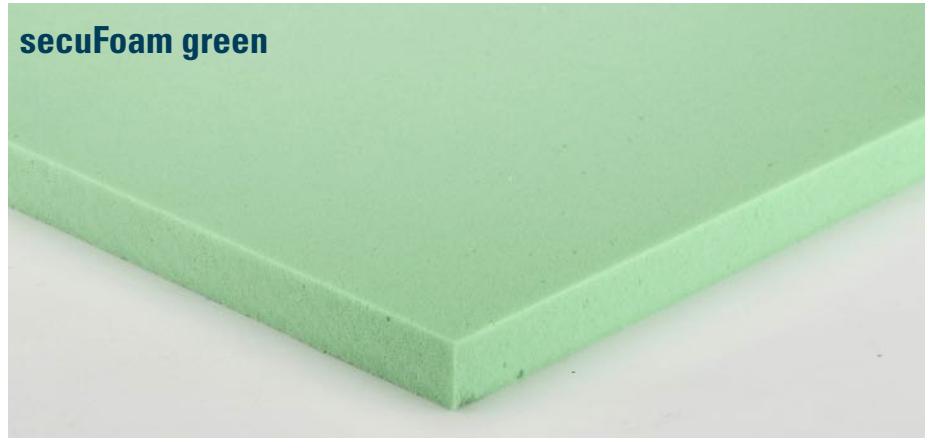
Molded parts



Hard or soft; secutex can produce a wide range of molded parts quickly and cost-effectively. No molding costs at all, only proportional material costs may be charged.



secuFoam green



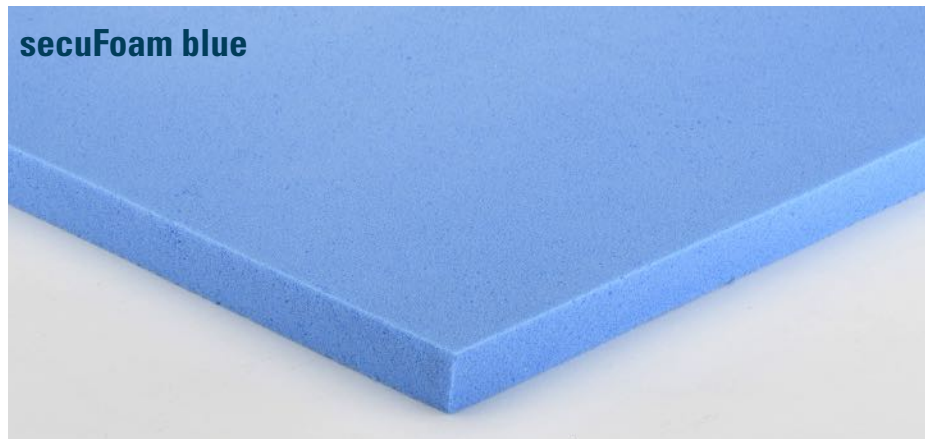
The top seller. Extremely resistant and still soft. Highly durable secuFoam foam with a density of 300 kg/m³.

Technical Data

Width	2000mm
Length	1000mm
Thickness	5mm 10 mm 15 mm 20 mm



secuFoam blue



Soft and still durable. Ultra-strong secuFoam with 180 kg/m³ density.

Technical Data

Width	2000mm
Length	1000mm
Thickness	5mm 10 mm 15 mm 20 mm



secuFoam yellow



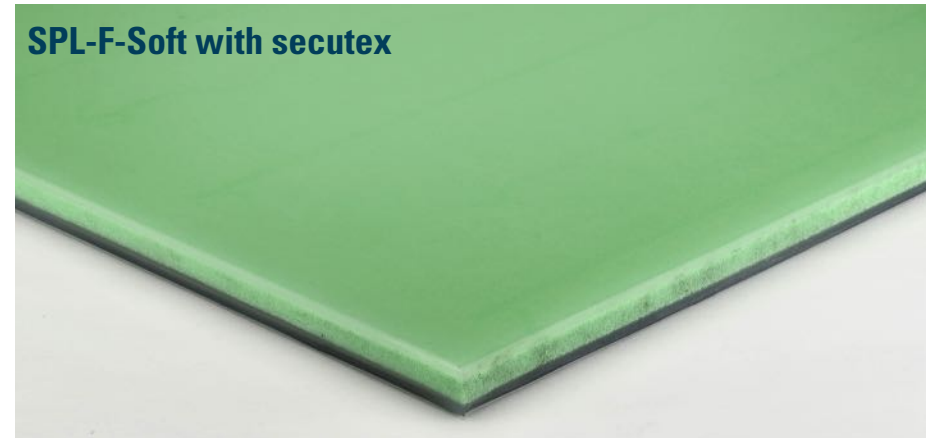
Resistant and soft at all times. Extremely robust secuFoam with 120 kg/m³ density.

Technical Data

Width	2000mm
Length	1000mm
Thickness	10 mm 15 mm 20 mm



SPL-F-Soft with secutex



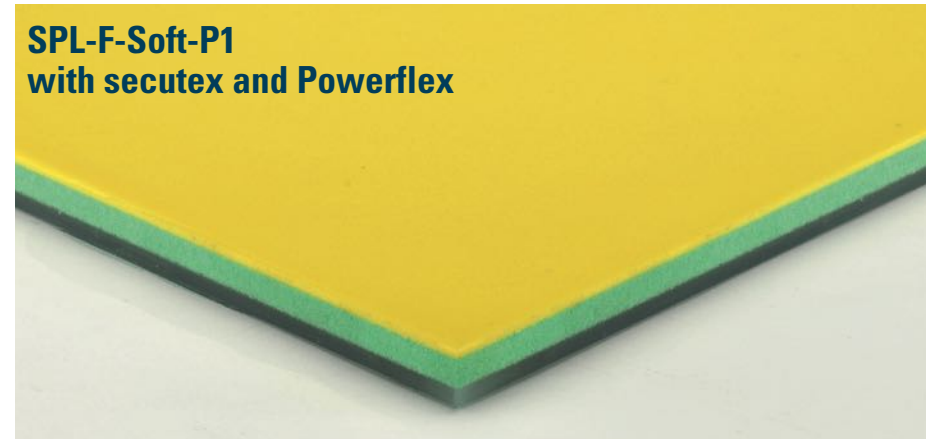
Sturdy and shock-resistant at all times. SPL-soft absorbs excellent shocks and provides perfect surface protection. Especially suitable for sensitive goods and objects with uneven surfaces due to flexible secutex protection layer. Because of the perforated plate on the bottom side SPL-soft is perfect to screw.

Technical Data

Width	2000mm
Length	1000mm
secuFoam	yellow blue green
Thickness SPL-Soft with secutex	15mm 20 mm 25 mm 30 mm



**SPL-F-Soft-P1
with secutex and Powerflex**



Extra flexible. The thin Powerflex layer on top protects the flexible foam. The extra flexible secuFoam-layer makes it especially suitable for extremely sensitive goods. Because of the perforated plate on the bottom side SPL-soft is perfect to screw.

Technical Data

Width	2000mm
Length	1000mm
secuFoam	yellow blue green
Thickness SPL-Soft with secutex and Powerflex	11mm 16mm 21 mm 26mm



SP-F-Soft with Powerflex



Active-absorption impact protection
If secutex Soft is coated by a Powerflex surface, dirt particles and liquids are prevented from penetrating the foam. Additionally, open-pore material protects against abrasion, without losing its elastic properties.

Technical Data

Width	2000mm
Length	1000mm
secuFoam	yellow blue green
Thickness SP-Soft Powerflex	6mm 11mm 16mm 21mm



secuGrip 90 laminate



With structured surface
(according to VDI 2700, Bl. 15, point 7; „Slip-resistant materials for securing loads on road vehicles“)

- Very good slip resistance, also in wet conditions.
- Very high structural strength (designed in accordance with VDI 2700, sheet 15, points 7.4 and 7.5; „Slip-resistant materials for securing loads on road vehicles“)

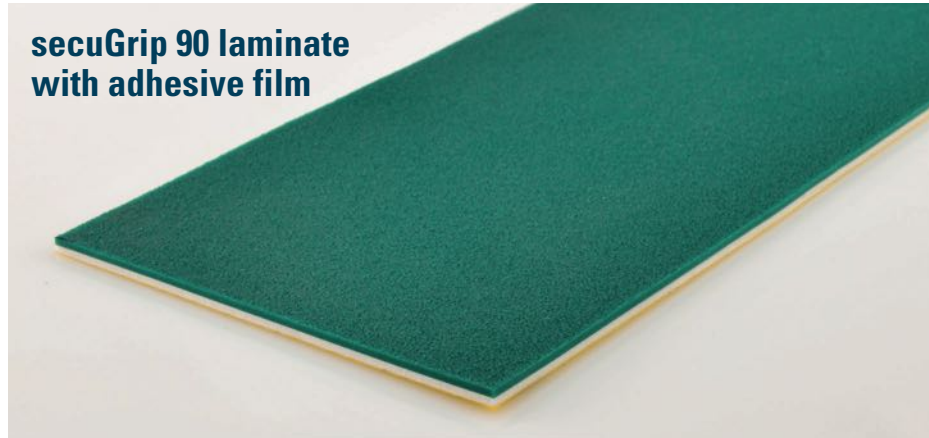
Excellent adhesion in combination with UHU PLUS ENDFEST 300

Technical Data

Coating hardness	75°, 90° Shore A
Width	30-1000 mm
Length	Standard-Length 3 m



secuGrip 90 laminate with adhesive film




With structured surface
(according to VDI 2700, Bl. 15, point 7; „Slip-resistant materials for securing loads on road vehicles“)

- Very good slip resistance, also in wet conditions.
- Very high structural strength (designed in accordance with VDI 2700, sheet 15, points 7.4 and 7.5; „Slip-resistant materials for securing loads on road vehicles“)
- Proven adhesive strength: Can be bonded quickly and easily with laminate adhesive film

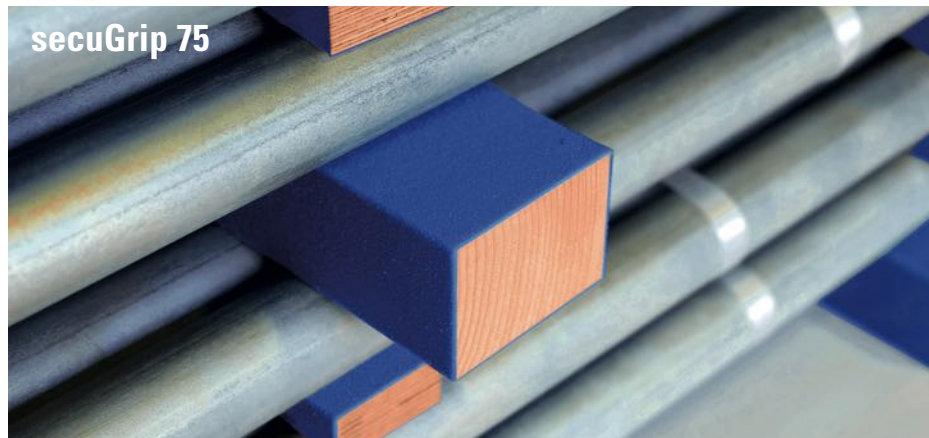
Technical Data

Thickness	2mm 4mm
Width	30-1000 mm
Length	Standard-Length 3 m



 All staple timbers or formed elements can be coated. Please request.

secuGrip 75



secuGrip is an extremely robust spray coating, also for wooden beams and boards. The coated timber beams do not absorb any oil or water and, because of their certified anti-slip properties (Dekra tested), are perfectly suited as a load securing device. The wooden beams become much more sturdy through the coating with secuGrip, our customers recommend the much better durability, even in hard transport use. One forwarder reports that the secuGrip wooden beams have a life span that is up to 10 times longer than that of the previously used uncoated wooden beams.



Spray coating on delivered components



The secugrip 90 coating can be used to coat wood, metal or even adhesive film. This allows the customer to line individual surfaces and therefore prevents loads from slipping.

Dosing and mixing, application of the glue



If necessary, remove the existing protective foil. The adhesive surfaces must be cleaned very well before the glue is applied. It is recommended to grind the forks and also the steel tip first with abrasive paper, grain size 100, then clean with cellulose, moistened with a grease solvent (acetone). A processing temperature of 100° C is recommended, as the adhesive strength of UHU PLUS ENDFEST 300 is twice as high as at room temperature.




Curing time UHU PLUS ENDFEST 300 depending on temperature

20°C	12 h
40°C	3 h
70°C	45 min
100°C	10 min
180°C	5 min



Prüfzeugnis über Reibbeiwerte
Gepflicht nach VDI 2700 Blatt 14



für Firma: SpanSet-secutex GmbH

1 Beschreibung der Reibpartner

1.1 Auflagefläche
1.1.1 Art : MULTIPLEX Platten mit secuGrip-90 Beschichtung
1.1.2 Typ : secuGrip-90
1.1.3 Zustand : neu

1.2 Ladegut:
1.2.1 Art : Europool-Palette
1.2.2 Abmessungen [cm] : 80 x 120
1.2.3 Masse des Ladeguts [kg] : 1020
1.2.4 Kontaktfläche (bei Verwendung von RH-M) [cm²] : ---

2 Prüfbedingungen

2.1 Umgebungstemperatur : 23 [°C]
2.2 Ort und Datum der Prüfung : DEKRA Automobil Test Center Kletitz, 24.08 - 12.09.2016


3 Ermittelte Gleit-Reibbeiwerte

Anordnung Auflagefläche	Anordnung Ladegut	siehe Foto	Ergebnis μ
längs	längs	Abbildung 1	0,74
quer	quer	Abbildung 2	0,74

Dipl.-Ing. (FH) Ulf Bülling
Fachspezialist

Kletitz, 20.09.2016
Ort, Datum der Ausstellung

Prüfzeugnis über Reibbeiwerte
Gepflicht nach VDI 2700 Blatt 14



für Firma: SpanSet-secutex GmbH

1 Beschreibung der Reibpartner

1.1 Auflagefläche
1.1.1 Art : MULTIPLEX Platten mit secuGrip-75 Beschichtung
1.1.2 Typ : secuGrip-75
1.1.3 Zustand : neu, trocken

1.2 Ladegut:
1.2.1 Art : Europool-Palette
1.2.2 Abmessungen [cm] : 80 x 120
1.2.3 Masse des Ladeguts [kg] : 1030
1.2.4 Kontaktfläche (bei Verwendung von RH-M) [cm²] : ---

2 Prüfbedingungen

2.1 Umgebungstemperatur : 23 [°C]
2.2 Ort und Datum der Prüfung : DEKRA Automobil Test Center Kletitz, 12.10. - 17.10.2017

3 Ermittelte Gleit-Reibbeiwerte

Anordnung Auflagefläche	Anordnung Ladegut	siehe Foto	Ergebnis μ
längs	längs	Abbildung 1	0,91
quer	quer	Abbildung 2	0,85

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Fachspezialist

Kletitz, 21.11.2017



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